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ABSTRACT

This paper describes the technology training offered in the Department of Urban Education at the University of Houston Downtown (Texas) and the implementation of this training. Brief descriptions of five three-hour workshops covering the following topics are provided: (1) e-mail and Internet discussion; (2) WWW (World Wide Web) and Web search; (3) desktop publishing and graphic organizers; (4) PowerPoint presentation; and (5) hardware and software evaluations. An example of the pre-service use of this training to prepare units, lessons, and activities for centers in the curriculum course is also provided. (MES)

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Preparing Pre-Service Teachers to Use Technology to Teach the Content Areas in Elementary Schools

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Abstract: This paper describes the technology training and the implementation of this training. An example of the pre-service use of this training to prepare units, lessons, and activities for centers in the curriculum course will be provided.

The mission of the Department of Urban Education at the University of Houston Downtown(UHD) is to prepare future teachers who will enhance the chances of academic success for at-risk children and adolescents in urban schools. In order to provide its pre-service teacher with experience in using technology to enhance instruction, this department is integrating the educational computing component into its existing interdisciplinary block structure.

This paper describes the technology training and the implementation of this training. An example of the pre-service use of this training to prepare units, lessons, and activities for centers in the curriculum course will be provided, also.

The technology training is a one hour credit course which is held in the lab entitled: "The Way to Go: Integrating Instructional Technology Initiatives into a Teacher Education Program." As described in the syllabus for the course, the five technology sessions are integrated into the first block for the pre-service teachers at the Department of Urban Education (http://www.dt.uh.edu/degree/urbaned/home1.htm). The course is offered in the format of five workshops of three hours each, which are spread throughout the whole semester.

The titles and brief descriptions of the five workshops (3 hours each) currently offered are provided as follows:

Workshop I: E-mail & Internet Discussion:

The instructor starts with an introduction to the use of different professional teachers' forums over the WWW by showing pre-service teachers how to follow the threads, respond to interesting topics, and start their own subjects. This activity usually will raise students' interests and attention since they have heard of people talking about chat rooms and other related topics. After a short break, the instructor assists students in creating accounts with a web-based e-mail program such as Hotmail and Yahoo. The instructor then demonstrates the ways to check in-coming mail, compose out-going mail, send documents as attachments, forward and respond to mail, set up distribution lists to send to multiple recipients, set up automatic signature files, organize read e-mails into different folders.

Workshop II: WWW & Web Search

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The instructor starts by demonstrating the CS1105 class web site created just for them (http://www.dt.uh.edu/~chen/cs1105.html). The web site consists of different of applications and examples of WWW uses in K-12 classrooms. Examples include: Spanish-English online translator, Webster's interactive dictionary, web site of the White House, lesson plan archives, askERIC archives, TEA (Texas Education Agency) homepage, TEKS (Texas Essential Knowledge and Skills) web site, etc. The choice of web sites to be included are customized to meet the needs of different groups of students. Examples might include a demonstration for the bilingual education groups which will emphasize Mexican culture and Spanish language arts; a demonstration for the secondary education groups will emphasize different content areas. Students also learn how to download texts and graphics from the Internet while sharpening their web search and web research skills at the same time.

Workshop III: Desktop Publishing & Graphic Organizers

The instructor starts with demonstrations of previous students' works including newsletters and flyers created for school activities or professional development. Pre-service students usually are amazed by the good jobs done by the previous students. They also are made aware of the high standard the instructor expects from the homework they are assigned. The instructor then guides the students with the creation of a simple flyer and a newsletter while allowing them the flexibility of applying clip art, word art, colors, and content to enhance their ownership of the product. After this, the instructor explains the different looks and uses of graphic organizers and demonstrates the creation of a thematic unit with the fundamental building blocks of graphic organizers such as text, circles, lines, and colors.

Workshop IV PowerPoint Presentation

The instructor starts with a demonstration of previous students' PowerPoint presentations, including some that need to be improved and several that resemble pieces of art. The instructor tries to evoke the students' higher order thinking skills by explaining the strengths and weakness of the slide shows and the rationales. Following an activity guide, the instructor leads the students in creating two simple slides with headings, text, graphics, and charts. The workshop ends with the showing of the more advanced functions of PowerPoint such as animation, sound, transitions.

Workshop V: Hardware & Software Evaluations

Since few pre-service teachers are aware of the different parts that make up a computer, the instructor brings in an old computer, takes it apart, and explains the different functions of the parts. By so doing, it is hoped that the students' anxiety level in using the computer will be lower. Students are then instructed in hardware evaluation. The hardware session ends with a twenty-minute activity called "The Price Is Right!" This activity is a search on the Internet for a brand new computer system with features that are comparable or better than those described in "The Price Is Right!" hand-out. The purpose is to equip the students with the skills required for them to do their own hardware search. The software evaluation session starts with software demonstrations including Story Book Weaver, Body Works, Amazon Trails, Just Grandma and Me, and Encarta. Students are then instructed in software evaluation. The workshop concludes with the students filling out software evaluation rubrics so that they will become comfortable judging educational software.

Technology is used as one more tool in today's classrooms, therefore; this training gives a strong base to pre-service teachers for planning and delivering instruction in the classrooms. Pre-service teachers plan units, lessons, and center activities in the areas of science, social studies, mathematics, language arts, and ESL. The procedures for planning and preparing a unit are explained as follow.

The pre-service teachers visit a selected classroom in the home school. They proceed to conduct a formal and an informal assessment of children's needs. They determine the interests of the students using a KWL (what the students know, want to know, and have learned) diagram. Based on this information, the pre-service teachers select the theme and areas of study for the unit. They access the Internet to find resources for the units. They have already acquired the basic Web search skills from Workshop II WWW &

Web Search. The general steps to finding information about Africa for example or any other specific topic are:

Step 1:

Log on to the www.go.com search engine. From the authors' observation, this search engine usually offers the best search results for education related topics.

Step 2:

Type in the search words "African Resources" and hit the FIND button. You may replace the search words with your own topic.

Step 3:

Browse through the "hits" or "results" to read the site descriptions and follow some interesting hyperlinks. Use your judgment to decide which are the most appropriate to use for your classroom. The go.com search engine has already applied its selection standard, which is indicated by the percentage number next to the web site description.

Another way to do a search is to access specific educational sites such as:

- http://www.yahooligans.com

This site is very popular with young children. It has topics such Around the World (countries, food, and holidays); School Bell (Language Arts, Math, and Social Studies; Science and Nature (Space, Animals, and Dinosaurs); Arts and Entertainment; Computers and Games; Sports and Recreation.

- http://www.davilaelementary.org/

This is a school web site customized for visitors, students, and teachers. It offers visitors specific information about the school. It also shows resources for teachers and students by subject. It is an interesting site to see samples of students' work and lesson plans.

- http://www.homeworkcentral.com/

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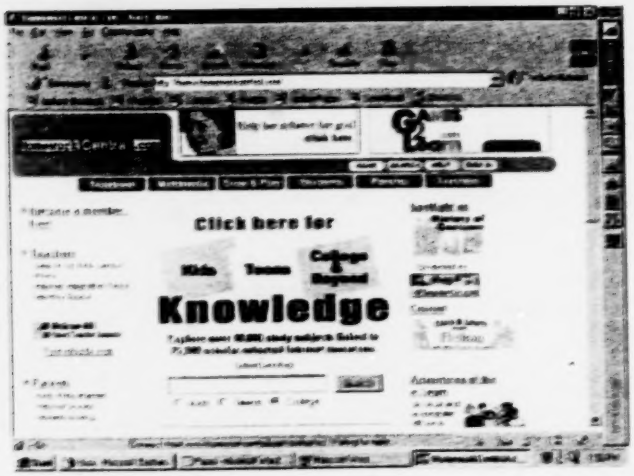
This is one of the most complete web sites for teachers and students' resources. The site is divided in three areas: kids, teen, and college & beyond. It has links to 75,000 scholar-selected Internet resources. It has more than 14,000 lesson plans, Internet integration ideas and monthly topic for teachers. This site has tutorials for students in various areas and grade levels. It is an invaluable resource for teachers.



All these ideas are an excellent beginning to survey the resources needed to plan a unit. Teachers, however, need to include in this planning the objectives also. In the state of Texas these objectives are called Texas Essential Knowledge and Skills (TEKS). The TEKS indicate the skills that teachers need to cover by subject and grade levels. The pre-service teachers have access to this information on line. The address is http://www.tea.state.tx.us/teks/#Grade. They also use the results of the TAAS (Texas Assessment of Academic Skills) scores in planning the unit. The pre-service teachers include in the unit several objectives where the children in the TAAS test did not performed at grade level. This information is also available on line by school district. In summary, the unit indicates the objectives that will be covered in a classroom for a specific period of time. The unit must be the result of formal and informal assessments conducted in the classroom where the unit will be implemented. To see some samples of the units developed by UHD bilingual pre-service teachers, please visit http://www.dt.uh.edu/bilingual_education/.

After the pre-service teachers have completed the planning of the unit, they are ready to design the lessons for that particular unit. The lessons have to include some type of technology for example software, encyclopedia or Internet. Again the training the students received in the technology class is used in the planning of the lessons and the use of technology to deliver instruction. The students are encouraged to do a search online to review different types of lesson plan. Some interesting addresses are:

- http://faldo.atmos.uiuc.edu/CLA/

  This collaborative archive has included lesson plans and activities from preschool through college. The viewer will first pick up a grade level and then follow the subjects. The contents are provided in a discussion listserv format, which allows people to respond and expand on the original ideas.

- http://ericir.syr.edu/Virtual/Lessons/

  The US Department of Education endorsed these collections of lesson plans. Users may select from a list of subjects that are followed by intradisciplinary content areas. The user can type keyword to search the entire AskEric Lesson Plans Collection for a specific lesson.

Pre-service teachers also use the objectives from the unit to plan the activities for the centers. It allows them to individualize instruction in the different content areas utilizing technology. Technology is a

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major component to meet the individual needs of each student in a classroom. Activities are planned with children's different levels of ability in mind. The activities go from guided tutorial to created activities. Children have the freedom to work by themselves, with a partner, or in small groups to complete their selected activities. For examples of activities for centers see the following address (http://www.dt.uh.edu/bilingual_education/).

In conclusion, pre-service teachers need extensive training in technology to meet the challenge of educating children for the new millennium. Technology allows teachers to individualize instruction and meet the needs of each student in the classroom. However, for technology to be effective, teacher preparation programs need to provide not only extensive but also intensive hand-on practice with technology applications in the classroom.

Reference:

Chen, "Irene" Linlin. (1999). The way to go: Integrating instructional technology initiatives into a teacher education program. In J. Price, J. W. Willis, & D. Willis (Eds.), (pp. 18-21). *Technology and Teacher Education Manual – 1999*. Charlottesville, VA: Association for the Advancement of Computing in Education.